

From Whom ....

Place ....

Date ....

SUBJECT.

*Seasmal Pneumonia.*

*Connected Papers.*

MINUTES.

No Minutes should be written on this page. A separate half-sheet to  
be used if required.

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Official Memorandum.

Jan. 7, 1923.

From

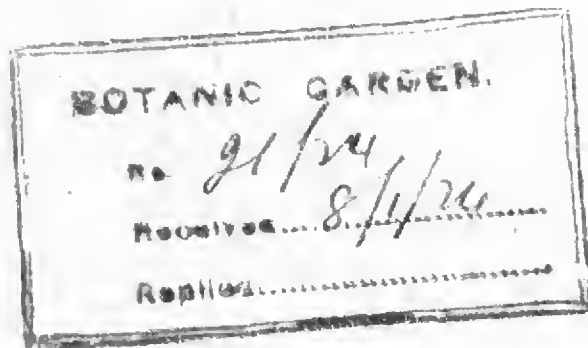
To

Director, Botanic Gardens,  
Singapore.

Dear Burkill;

Herewith a copy of a report which I am sending to all State Forest Officers. It is chiefly remarkable as showing how very meagre our collections have been.

F. W. Foxworthy



This term (which is contracted from phenomenology) is defined as, "The science of the relations between climate and periodic biological phenomena, as the migration and breeding of birds, the flowering and fruiting of plants, etc." The term makes a convenient single word reference for our records of the flowering and fruiting times of the different trees and it is proposed to use it as a heading in our files.

2. The Department has been accumulating phenological data for a number of years and a separate register has been kept in which were recorded the notes on flowering and fruiting that were given in forest officers' diaries. A considerably larger amount of information has been found on the field labels accompanying herbarium collections. The time of flowering and fruiting of particular trees may have considerable significance in Sylviculture and we have been trying to gather such information for inclusion in descriptions of the different commercial timber trees.

3. Table No. 1 has been prepared to include all of our authentic records of the time of flowering and fruiting of our timber trees in different years. The trees included in the timber roll are the principal ones considered. Mengkulang has been added because it is a tree which produces a timber of useful quality and in some quantity, and Tualang, because it is so conspicuous a feature of the landscape, in many places, and is a tree of some popular interest, by reason of its imposing appearance and large size. Much of the largest number of entries in the table have been taken from herbarium collections and represent fully opened flowers and mature fruit. No entry has been made in cases where the stage of flower or fruit development could not be determined.

TABLE No.1  
TABLE OF FLOWERING AND FRUITING TIMES.

TREE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
KAYU ARANG			X	X		X		X	X	X		
flower	:	:	:	X	X	:	:	X	X	X	:	:
fruit	:	:	X	:	:	:	:	X	X	X	:	X
BALAU			X	X								
flower	:	:	X	X	:	:	:	:	:	:	:	:
fruit	:	:	:	:	X	:	:	X	X	:	:	:
BELIAN or BETIS			X		X	X						
flower	:	:	X	:	X	X	:	:	:	:	:	:
fruit	:	:	X	X	:	X	X	:	:	X	:	:
BERANGAN		X	X	X	X	X		X	X	X	X	X
flower	:	X	X	X	X	X	:	X	X	X	X	X
fruit	:	X	X	X	X	X	:	X	X	X	X	X
BINTANGOR		X	X	X	X	X	X	X	X	X	X	X
flower	:	X	X	X	X	X	X	X	X	X	X	X
fruit	:	X	X	X	X	X	X	X	X	X	:	X
BUNGOR			X	X	X	X	X	X	X	X		X
flower	:	:	X	X	X	X	X	X	X	X	:	X
fruit	:	:	X	:	X	:	X	X	:	:	:	:
CHENGAL		X	X	X	X	X	X	X	X	X	X	X
flower	:	X	X	X	X	X	X	X	X	X	X	X
fruit	:	X	X	X	X	X	X	X	X	X	X	X
DAMAR HITAM		X		X	X	X						
flower	:	X	:	X	X	X	:	:	:	:	:	:
fruit	:	X	:	:	:	X	X	X	X	:	:	X
DAMAR LAUT										X		X
flower	:	:	:	:	:	:	:	:	:	X	:	X
fruit	:	:	:	:	:	:	:	X	X	X	X	X
DEDALI		X		X		X	X	X	X			X
flower	:	X	:	X	:	X	X	X	X	:	:	X
fruit	:	:	:	:	:	:	:	X	:	X	:	:
DEDARU												X
flower	:	:	:	:	:	:	:	:	:	:	:	X
fruit	:	:	:	X	X	:	X	:	:	:	:	:
DURIAN DAUN					X	X		X	X	X	X	
flower	:	:	:	:	X	X	:	X	X	X	X	:
fruit	:	:	:	:	:	:	X	X	X	X	X	X
GADING		X	X	X	X			X				X
flower	:	X	X	X	X	:	:	X	:	:	:	X
fruit	:	X	:	X	:	:	:	X	:	:	:	X
GERONGGANG				X		X	X		X			X
flower	:	:	:	X	:	X	X	:	X	:	:	X
fruit	:	:	X	X	X	:	:	X	X	:	X	:
GLAM					X			X				X
flower	:	:	:	:	X	:	:	X	:	:	:	X
fruit	:	:	:	:	:	:	:	X	:	:	:	:
JELUTONG			X	X	X	X	X		X	X	X	
flower	:	:	X	X	X	X	X	:	X	X	X	:
fruit	:	:	:	:	X	:	:	:	X	X	X	:
KAMAP or PETALING GAJAH							X	X	X			X
flower	:	:	:	:	:	:	X	X	X	:	:	X
fruit	:	:	:	X	:	:	:	X	X	X	:	X
KAPUR				X	X	X	X		X	X	X	X
flower	:	:	:	X	X	X	X	:	X	X	X	X
fruit	:	X	X	X	:	X	X	:	X	:	X	X
KELADAN				X	X	X		X	X	X		
flower	:	:	:	X	X	X	:	X	X	X	:	:
fruit	:	X	:	:	:	X	X	X	X	X	X	X
KELAT		X	X	X	X	X	X	X	X	X	X	X
flower	:	X	X	X	X	X	X	X	X	X	X	X
fruit	:	X	X	X	X	X	X	X	X	X	X	X
KELEDANG					X	X						
flower	:	:	:	:	X	X	:	:	:	:	:	:
fruit	:	:	:	:	:	X	X	:	:	:	:	:



TABLE No. 1.  
FLOWERING AND FRUITING TIMES (continued).

TREE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>KEMPAS</b>												
flower	:	:	:	:	:	:	:	:	:	:	:	:
fruit	:	x	x	x	:	:	x	x	x	x	x	x
<b>KEMUNING</b>												
flower	:	:	:	x	x	x	:	x	:	:	x	:
fruit	:	:	:	x	x	x	:	:	x	:	:	x
<b>KETENGGEH</b>												
flower	:	x	:	:	:	:	:	:	:	:	:	:
fruit	:	:	x	x	:	:	x	x	:	x	:	x
<b>KERANJI</b>												
flower	:	x	x	x	:	x	x	:	:	x	x	x
fruit	:	x	:	:	:	:	:	x	:	x	x	x
<b>KERUING</b>												
flower	:	x	x	x	x	x	x	x	x	x	x	x
fruit	:	x	x	x	x	x	x	x	x	x	x	x
<b>KULIM</b>												
flower	:	:	x	x	x	:	:	x	:	:	:	:
fruit	:	:	:	:	:	x	:	x	x	:	x	x
<b>KUMUS</b>												
flower	:	:	:	:	:	x	x	:	:	:	x	:
fruit	:	:	:	:	:	:	x	:	x	x	x	:
<b>KUNGKUR</b>												
flower	:	:	:	:	:	:	:	:	:	:	:	:
fruit	:	:	:	:	:	:	:	x	:	:	:	:
<b>LEBAN</b>												
flower	:	x	x	x	x	x	x	x	x	x	:	x
fruit	:	x	x	x	x	x	:	x	x	x	:	x
<b>MALABERA</b>												
flower	:	:	x	:	:	x	x	x	x	:	x	:
fruit	:	:	:	:	x	x	:	:	x	:	x	:
<b>MEDANG</b>												
flower	:	x	x	x	x	x	x	x	x	x	x	x
fruit	:	x	x	x	x	x	x	x	x	x	x	x
<b>MEMPENING</b>												
flower	:	x	x	x	x	x	x	x	x	x	x	x
fruit	:	x	x	x	x	x	x	x	x	x	x	x
<b>MENGGULANG</b>												
flower	:	:	:	:	x	x	:	:	:	x	:	:
fruit	:	:	:	:	:	x	x	x	:	:	:	:
<b>MERANTI</b>												
flower	:	x	x	x	x	x	x	x	x	x	x	x
fruit	:	x	x	x	x	x	x	x	x	x	x	x
<b>MERANTI PAHANG</b>												
flower	:	x	x	:	:	:	x	:	:	x	:	x
fruit	:	:	:	:	:	:	:	:	x	x	:	x
<b>MERAWAN</b>												
flower	:	:	x	x	x	x	x	x	x	x	x	x
fruit	:	x	x	x	x	x	x	x	x	x	:	x
<b>MERBAU</b>												
flower	:	x	x	x	x	x	:	:	:	x	:	x
fruit	:	:	x	x	x	x	x	x	x	x	x	:
<b>MERSAWA</b>												
flower	:	:	:	:	x	x	x	:	x	:	x	:
fruit	:	x	:	:	:	x	x	x	x	x	x	x
<b>NYATOH</b>												
flower	:	x	x	x	x	x	x	x	x	x	x	:
fruit	:	x	:	x	x	x	x	x	x	x	x	x
<b>PENAGA</b>												
flower	:	x	:	x	x	x	x	x	x	x	x	x
fruit	:	x	x	:	:	:	:	:	x	x	x	x
<b>PENAGA LAUT</b>												
flower	:	:	:	:	x	x	x	:	:	:	x	:
fruit	:	x	:	:	:	x	x	:	x	:	x	:

TABLE No. 1.  
FLOWERING AND FRUITING TIMES (continued).

TREE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PETALING												
flower:		x	x	x	x	x	x	x	x	x	x	
fruit:	x	x	x	x	x	x	x	x			x	x
PUNAH												
flower:		x	x			x		x		x	x	
fruit:		x	x		x			x		x		
PUNGGAI												
flower:		x			x				x			
fruit:					x							x
RENGAS												
flower:	x	x	x	x		x	x	x		x		
fruit:	x	x	x	x	x	x	x	x	x	x		x
RESAK												
flower:			x	x	x	x			x			
fruit:	x	x				x	x	x	x	x		
RU												
flower:				x	x			x				
fruit:					x	x		x				
SELIMBAR												
flower:												
fruit:								x				
SENA												
flower:				x	x	x						
fruit:					x		x					
SENGKAWANG												
flower:			x			x		x		x		x
fruit:		x										x
SEPETIR												
flower:				x	x	x			x			
fruit:	x					x	x	x	x			x
SERAYA												
flower:					x	x	x	x	x			
fruit:						x	x	x	x	x	x	x
SIMPOH												
flower:	x	x	x	x	x	x	x	x		x		x
fruit:		x			x			x	x		x	x
SURYAN												
flower:		x										
fruit:										x		
TEMBUSU												
flower:	x			x	x	x	x	x	x		x	x
fruit:						x	x	x	x	x	x	x
TEMPINIS												
flower:	x	x	x	x	x	x	x	x			x	
fruit:	x	x						x			x	
TERENTANG												
flower:	x	x	x	x	x		x	x	x			
fruit:		x			x							
TUALANG												
flower:					x	x						
fruit:								x	x			

The most outstanding feature of this table is the distribution of flowering and fruiting times throughout the year and the apparent lack of definite flowering and fruiting seasons. The average number of entries for all forms in the table is a little more than six months for flowering and a little more than 6 months for fruiting. In several cases, as Damar Laut, Damar Hitam, Selimbar, Kumus, and Tualang, there are very few entries because there has been very little collecting of these forms; otherwise, the average number of entries would be larger. Kelat, Keruing, Medang, Mempening, and Meranti have been collected in flower and in fruit in every month of the year, and a number of others have been collected in nearly every month. Most of these names represent a group of species, but Chengal, which is one species, has been collected in fruit in every month of the year and in flower in every month but January. There are 364 entries of flowering and 363 of fruiting. A separate tabulation by months has been made to see if that would give any indication of seasons. -

Month	Flower entries	Fruit entries	Total
January	22	24	46
February	27	26	53
March	32	22	54
April	36	20	56
May	41	33	74
June	38	28	66
July	28	33	61
August	32	47	79
September	32	35	67
October	30	34	64
November	19	26	45
December	27	37	64
	<u>364</u>	<u>363</u>	<u>727</u>

From this it would seem that May is the greatest month for flower and August for fruit. This is probably due to the entries from the east coast, where the seasons are more marked. The average number of entries per month is just over 60, and the only months which fall far below this number are January and November. There does not seem enough evidence here to warrant the conclusion that there are any sharply marked seasons.

4. A separate table, No. 2, has been prepared to show the records for 1923 and the places from which the records come. The reports have been made principally by this office and by the Forest Departments in Johore and Kedah.



TABLE No. 2.  
FLOWERING AND FRUITING OF TIMBER TREES  
in the Malay Peninsula in  
1923.

	Flowering		Fruiting	
	Month:	Place	Month:	Place
Kayu Arang	: Oct.:	Weld Hill	: Aug.:	Kuantan
Belian			: Aug.:	Kuantan & Rompin
Balau			: Sept.:	Rompin.
Belian or Betis		No report		
Berangan	: May :	Ulu Gombak, Sel.	: March:	Kuala Lipis
			: July :	Weld Hill
			: Aug. :	Weld Hill
Bintangor	: March:	Johore	: Jan. :	Kedah & Johore
	: Sept.:	Fraser's Hill	: Feb. :	Kuala Lipis & Temerloh
	: Oct. :	Chikus Res., Perak	: March:	Johore
Bungor	: April:	Larut		
	: June :	Kedah		
	: July :	Johore		
Chengal	: Feb. :	Kedah	: Jan. :	Taiping, Kuala Pilah
	: April:	Larut & Sungei Buloh	: Feb.:	Kedah
	: Dec. :	Larut	: March:	Kuala Pilah
			: April:	Sungei Buloh
			: June :	Kuala Pilah
			: Aug. :	Raub, Kuantan
			: Nov. :	Kuala Pilah
			: Dec. :	Kuala Pilah
Damar Hitam	: May :	Penang		
Damar Laut			: Aug. :	Prov. Wellesley
Dedali	: Aug. :	Weld Hill	: Aug. :	Weld Hill
Dedaru			: April:	Johore
			: May :	Johore
Durian Daun	: May :	Sungei Buloh	: July :	Johore
Gading		No report.		
Geronggang	: Sept :	Fraser's Hill	: Nov. :	Kuala Lumpur
Giam		No report.		
Jelutong	: April:	Larut	: May :	Weld Hill
	: May :	Weld Hill & Sungei Buloh.		
Kamap		No report.		
Kapur	: April:	Johore	: March:	Ulu Selangor
			: May :	Johore
			: June :	Johore
Keladan	: May :	Johore	: July :	Johore
			: Aug. :	Johore
Kelat	: Feb. :	Johore	: March:	Kedah & Ulu Selangor
	: March:	Weld Hill	: April:	Weld Hill & Sungei Buloh
	: April:	Johore, Ulu Langat, Sungei Buloh.	: June :	Johore
	: May :	Kuala Lumpur & Johore		
	: June :	Kuala Lumpur & Johore		
	: Aug. :	Kuala Lipis		
	: Sept.:	Fraser's Hill.		

PHENOLOGICAL CHART (continued)

TREE	Flower		Fruit	
	:Month:	Place	:Month:	Place
Keledang	:June :	Kedah	:July :	Kedah
Kempas	:	:	:Jan. :	Johore
			:March:	Ulu Selangor
			:July :	Johore
			:Aug. :	Raub
			:Sept.:	Kuala Lumpur
			:Oct. :	Ginting Simpah
			:Nov. :	Sungei Buloh
Kemuning	No report.			
Ketenggeh:	:	:	:June :	Kedah
	:	:	:July :	Weld Hill
	:	:	:Nov. :	Weld Hill.
KerANJI	:June :	Kuantan	:Dec. :	Taiping
KERUJING	:Feb. :	Kedah	:Jan. :	Klang
	:May :	Johore	:Feb. :	Kelantan, Sungei Buloh
	:June :	Kuantan	:March:	Johore, Temerloh
	:July :	Johore	:April:	Johore
	:Sept.:	Fraser's Hill	:May :	Penang, Johore
	:Nov. :	Weld Hill	:June :	Johore
			:July :	Johore, Malacca
			:Aug. :	Raub, Kuala Lipis, Kuantan, Malacca.
			:Sept.:	Fraser's Hill
			:Oct. :	Ginting Simpah
			:Nov. :	Sungei Buloh
			:Dec. :	Sungei Buloh.
KULIM	:	:	:July :	Kedah
	:	:	:Aug. :	Kuantan
	:	:	:Nov. :	Kuala Kangsar
KUMUS	:	:	: Aug.:	Kuantan
KUNGKUR	No report.			
LEBAN	:April:	Kuala Lipis, Ulu Langat	:April:	Kuala Lipis
	:May :	Kuala Lipis & Johore	:May :	Kuala Lipis, Johore
MALABERA	:June :	Kedah & Klang	:	:
	:July :	Kedah & Kuala Lumpur	:	:
MEDANG	:Jan. :	Kedah	:June :	Kedah
	:Feb. :	Kuala Lipis	:July :	Johore
	:March:	Weld Hill	:Aug. :	Sungei Buloh
	:April:	Ulu Langat, Sungei Buloh	:Sept.:	Fraser's Hill
	:May :	Weld Hill	:Oct. :	Kedah
	:June :	Kuantan	Dec. :	Larut
	:Sept.:	Fraser's Hill		
MEMPENING:	Jan. :	Sungei Buloh	:April:	Johore & Sungei Buloh
	:Feb. :	Kuala Lipis	:May :	Johore
	:April:	S/Buloh & Ulu Langat	:July:	Johore Kuala Lumpur
	:Sept.:	Fraser's Hill	:Aug. :	Raub
	:Aug. :	Weld Hill	:Sept.:	Fraser's Hill
			:Dec. :	Sungei Buloh.

PHENOLOGICAL CHART (continued)

	Flower		Fruit	
	Month:	Place	Month:	Place
MENGGULANG	:April:	Kuantan	:	:
MERANTI	:Feb. :	Klang	:Feb. :	Selama, Johore
	:March:	Klang, Johore	:March:	Dindings, Johore
	:April:	Ulu Langat, Johore, Kuantan.	:May :	Johore
	:May :	Johore, Sungei Buloh	:June:	Penang, Sungei Buloh, Kuantan, Johore.
	:June :	Kuantan	:July :	Johore, Malacca
	July :	Johore, Kuala Lipis	:Aug. :	Kuala Lumpur, Malacca, Kuantan, Kuala Lipis.
	:Sept.:	Kuala Lumpur, Chikus Res., Perak	:Oct, :	Ginting Simpah, Chikus Res., Perak.
	:Oct. :	" " " " Sungei Buloh.	:Nov. :	Kuala Kangsar, Weld Hill, Sungei Buloh.
	:Nov. :	Weld Hill, S. Buloh	:Dec. :	Seremban, Sungei Buloh
MERANTI PAHANG or "Lemesu"	:Feb. :	Pekan	:Aug. :	Kuantan.
	:	:	:Sept.:	Pekan.
MERAWAN	:April:	Ulu Langat	:Jan. :	Klang
	:May :	Penang	:April:	Johore
	:June :	Kuantan	:July :	Johore
	:July :	Johore	:Aug. :	Kuantan
	:	:	:Sept.:	Malacca
MERBAU	:Jan. :	Matang (Taiping)	:March:	Matang (Taiping).
	:	:	:Nov. :	Sungei Buloh.
MERSAWA	:	:	:Oct. :	Ginting Simpah
NYATOH	:March:	Johore	:July :	Johore (Sundik).
	:	:	:Sept.:	Fraser's Hill.
	:	:	:Dec. :	Larut (Sundik).
PENAGA	:April:	Ulu Langat	:Nov. :	Kuala Kangsar
	:Oct. :	Weld Hill	:	:
	:Nov. :	Kuala Kangsar	:	:
PENAGA LAUT	:May :	Kuala Lumpur	:Aug. :	Kuantan
	:June :	Kuala Lumpur	:	:
PETALING	:April:	Sungei Buloh	:April:	Johore
	:April:	Ulu Langat	:Aug. :	Sungei Buloh
	:	:	:Nov. :	Sungei Buloh
	:	:	:Dec. :	Larut
PUNAH	:	:	:May :	Klang
PUNGGAI	:	:	:May :	Sungei Buloh
RENGAS	:Feb. :	Johore, Kuala Lipis,		
	:March:	Ulu Langat.	:Feb. :	Johore.
	:March:	Johore	:March:	Johore, Temerloh
	:April:	Sungei Buloh	:Aug. :	Larut, Raub
	:	:	:Sept.:	Fraser's Hill
	:	:	:Oct. :	Ginting Simpah.
RESAK	:March:	Penang	:Feb. :	Kelantan
			:June :	Johore
			:July :	Johore
			:Aug. :	Kuantan



PHENOLOGICAL CHART (continued)

TREE	Flower		Fruit	
	Month:	Place	Month:	Place
KAYU RU	:Aug. :	Kuantan	:Aug. :	Kuantan
SELIMBAR	:	:	:Aug. :	Kuantan
SENA	:June :	Kedah	:May :	Kuala Lumpur
	:May :	Jugra	:July :	Kuala Lumpur
SENGKAWANG	No report.			
SEPETIR	:	:	:June :	Sungei Buloh
	:	:	:July :	Johore
SERAYA	:Sept.:	Ulu Gombak	:Sept.:	Ulu Gombak
	:	:	:Oct. :	Ginting Simpah
SIMPOH	:Feb. :	Kedah	:Aug. :	Weld Hill
	:May :	Johore	:Nov. :	Malacca
	:July :	Johore	:Dec. :	Malacca
SURYAN	No report.			
TEMBUSU	:May :	Kuala Lumpur, Tampin	:Dec. :	Sungei Buloh
	:June :	Kedah, Sungei Buloh	:	:
TERENTANG	:April:	Ulu Langat	:May :	Kuala Lumpur
TEMPINIS	:Feb. :	Upper Perak	:	:
	:April:	Ulu Langat	:	:
	:June :	Weld Hill	:	:
	:Nov. :	Kuala Lumpur	:	:
TUALANG	:June :	Kuantan	:Aug. :	Kuantan, Kuala Lipis
	:	:	:Sept.:	Kuantan

Number of Entries by districts or States.

Selangor	96	Negri Sembilan	7
Johore	53	Malacca	7
Pahang West	34	Penang	5
Pahang East	26	Kelantan	2
Kedah	18	Dindings	2
Perak North	13	Prov. Wellesley	1
Perak South	4		
(Chikus Res.)			

Doubtless the record would show a much larger number of entries if more people had been making observations. As it stands, it can only be assumed to be a very partial record of what has happened. It, however, shows that Keruing has been found in fruit ~~in~~ during every month of the year, Meranti in nine months, and Chengal in eight months. Chengal represents a single species.

5. In order to show how the records appear when applied to particular species, the following table, No. 3, has been prepared to show the records for 1923 of certain of the better known species of Meranti.

TABLE 3.  
FLOWERING AND FRUITING OF CERTAIN OF THE COMMONER  
SPECIES OF MERANTI DURING 1923.

SPECIES	Flower		Fruit	
	Month:	Place	Month:	Place
<b>MERANTI</b>				
M. RAMBAI DAUN	:April:	Ulu Langat	:	:
S. acuminata	:June:	Kuantan	:	:
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M. PA-ANG	:Jan.:	Dindings	:March:	Dindings
S. bracteolata	:April:	Ulu Langat, Johore	:June:	Penang, Sungei Buloh, Johore.
	:May:	Johore, Sungei Buloh	:Oct.:	Ginting Simpah, Chikus Res., Perak
	:Sept.:	Chikus Res., Perak	:Nov.:	Sungei Buloh, Kuala Kangsar.
	:Oct.:	" " "	:Dec.:	Sungei Buloh, Seremban.
<hr/>				
<b>MELANTAI</b>				
S. macroptera	:April:	Kuantan	:Feb.:	Kanching
	:	:	:May:	Johore
			:June:	Kuantan, Johore.
			:July:	Johore
			:Aug.:	Kuantan, Kuala Lipis.
<hr/>				
<b>M. TEMBAGA</b>				
S. leprosula	:June:	Kuantan	:May:	Johore
	:July:	Johore	:July:	Johore
	:Sept.:	Sungei Buloh	:Aug.:	Kuantan, Kuala Lipis
	:Nov.:	Sungei Buloh	:Oct.:	Ginting Simpah
			:Nov.:	Sungei Buloh.
<hr/>				
<b>M. SARANG PUNAI</b>				
S. parvifolia	:Oct.:	Sungei Buloh	:May:	Johore
			:June:	Johore, Sungei Buloh
			:Nov.:	Kuala Kangsar, Kuala Lumpur, Sungei Buloh.

It is apparent from this table that the fruiting season has not been sharply marked in all cases. During August there was very pronounced fruiting of a number of species of Meranti and Keruing in eastern Pahang, but the same species were not apparently in either flower or fruit at that time in parts of the west coast. Some trees of Meranti Pa-ang and Meranti Sarang Punai fruited at Sungei Buloh in June and other trees of the same species during November or December. I am inclined to believe



believe that the very local fruiting which is sometimes observed on the west coast is correlated with the very local distribution of rainfall. It seems that a more or less prolonged dry period followed by a warm soaking rain will bring a number of trees into flower, whatever the time of the year. Flowering is so very local that different trees of the same species and growing only a few miles, or even a few hundred yards, apart may flower and fruit at times several months apart. Another thing brought out by this work is the extremely meagre information that we have. It is hoped that more extended observations will be made the coming year, so that we can prepare a much more representative phenological report at the end of the year. It is probable that nearly all of our species of timber trees will be found in flower during the year, if they are watched in every district.

6. Recommendations concerning future observations.

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Reports should state whether flowering or fruiting seems to be general or sporadic. Chengal has most often been observed to flower sporadically, only a fraction of the mature trees in a given area flowering at one time, while Kapur has more often been observed in general flower, although there have been observations made when it was only flowering sporadically.

It would be very useful if State Forest Officers would require reports of flowering or fruiting of the principal species from each of their districts. This might help us to determine whether there are any general rules governing the occurrence of flower and fruit in particular places.

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